

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) An electromagnetic digitizer sensor coupled to a processor, comprising:

a substrate;

a first array of sensing ~~loops-traces~~ each coupled between the processor and a first potential node, each sensing ~~loop-trace~~ in the first array being selectively connectable to the processor and further being selectively connectable to the first potential node; and

a second array of sensing ~~loops-traces~~ each coupled between the processor and the first potential node, each sensing ~~loop-trace~~ in the second array being selectively connectable to the processor and further being selectively connectable to the first potential node to form a loop between the first array of sensing traces and the second array of sensing traces,

wherein the first array of sensing ~~loops-traces~~ are each disposed at a first level of the substrate but not at a different second level of the substrate, and

wherein the second array of sensing ~~loops-traces~~ are each disposed at the second level of the substrate but not the first level.

2. (Original) The electromagnetic digitizer sensor of claim 1, wherein the first potential node is a ground node.

3. (Currently Amended) The electromagnetic digitizer sensor of claim 1, ~~further including: wherein~~

~~a substrate, wherein the first array of sensing loops are formed at a first level of the substrate; and~~

~~at the~~ second array of sensing ~~loops-traces~~ each coupled between the processor and a second potential node, each sensing ~~loop-trace~~ in the second array being switchable to connect and disconnect to the processor and further being switchable to connect and disconnect to the

~~second potential node, the second array being formed on a second level of the substrate different from the first level.~~

4. (Original) The electromagnetic digitizer sensor of claim 3, wherein at least one of the first and second levels of the substrate are a surface of the substrate.

Claims 5-10. (Canceled).

11. (Currently Amended) An electromagnetic digitizer sensor coupled to a processor, comprising:

a substrate;

a first plurality of sensing traces electrically coupled in parallel between the processor and a first node;

a second plurality of sensing traces electrically coupled in parallel between a second node and the first node;

a first plurality of switches each coupled between one of the first plurality of sensing traces and the processor;

a second plurality of switches each coupled between one of the second plurality of sensing traces and the second node,

a third plurality of sensing traces electrically coupled in parallel between the processor and a third node;

a fourth plurality of sensing traces electrically coupled in parallel between the processor and a fourth node;

a third plurality of switches each coupled between one of the third plurality of sensing traces and the processor; and

a fourth plurality of switches each coupled between one of the fourth plurality of sensing traces and the fourth node,

wherein the first and second pluralities of sensing traces are disposed at a first level of the substrate but not at a second level of the substrate, and

wherein the third and fourth pluralities of sensing traces are disposed at the second level of the substrate but not at the first level of the substrate,

wherein the first and second pluralities of sensing traces form first conductive loops, and

wherein the third and fourth pluralities of sensing traces form second conductive loops.

12. (Previously Presented) The electromagnetic digitizer sensor of claim 11, wherein the second node and the fourth node are each a ground node.

13. (Previously Presented) The electromagnetic digitizer sensor of claim 11, wherein the first node and the third node are each a floating node.

14. (Original) The electromagnetic digitizer sensor of claim 11, wherein the first plurality of sensing traces are disposed so as to be interleaved with the second plurality of sensing traces.

15. (Original) The electromagnetic digitizer' sensor of claim 11, wherein the first plurality of switches are embodied as a multiplexor.

16. (Previously Presented) The electromagnetic digitizer sensor of claim 11, wherein the first plurality of sensing traces are further switchably connectable to the second node, the second plurality of sensing traces are further switchably connectable to the processor, the third plurality of sensing traces are further switchably connectable to the fourth node, and the fourth plurality of sensing traces are further switchably connectable to the processor.

17. (Original) The electromagnetic digitizer sensor of claim 11, wherein the first and second plurality of sensing traces are arranged in a comb-like pattern.

18. (Previously Presented) The electromagnetic digitizer sensor of claim 11, wherein the first and second plurality of sensing traces are each arranged to be physically parallel with each other, and the third and fourth plurality of sensing traces are each arranged to be physically parallel with each other.

19. (Original) The electromagnetic digitizer sensor of claim 11, wherein the first and second plurality of switches are each single-pole-single-throw switches.

20. (Currently Amended) The electromagnetic digitizer of claim 11, wherein the first ~~and second pluralities of sensing traces form~~ conductive loops ~~that are~~ variable in both size and position depending upon states of the first and second pluralities of switches.

21. (Currently Amended) The electromagnetic digitizer of claim 20, wherein the ~~third and fourth pluralities of sensing traces form~~ second conductive loops ~~that are~~ variable in both size and position depending upon states of the third and fourth pluralities of switches.